

## **ABSTRACT**

Intraoperative diagnosis of central nervous system (CNS) lesions is of utmost importance for neurosurgeons to modify the approach at the time of surgery and to decide on further plan of management. There are basically three methods to obtain intra operative diagnosis viz. touch preparation, squash smear, frozen section. The stereotactic biopsies permit accurate sampling of multiple areas but yield tiny tissues and pathologists need a technique which gives accurate results regarding cellular morphology and at the same time quick and simple to do. Hence it is needed to compare the efficacy of these techniques viz. squash smears with the good old frozen section study and correlating with the 'gold standard' histopathological examination.

This was a prospective study conducted at a tertiary care institution involving departments of pathology and neurosurgery. Fifty patients were studied during a one year study period. The tissue samples collected intraoperatively were subjected to squash smear study and frozen section study and the surgeon proceeded with surgery. Final diagnosis was made with histopathological examination. In two patients where even HPE was equivocal immunohistochemistry was used. The results were tabulated, compared and analysed with the help of Chi Square test and p values obtained.

## **RESULTS:**

In 41 patients (82%), squash smear cytology, frozen section study and Histopathological examination revealed the same diagnosis. In one patient (2%), squash smear cytology differed from frozen section study but compared with histopathological examination. In three patients (6%), squash smear cytology differed from frozen section study where frozen section study compared with histopathology. In four patients (8%), histopathological examination was different from frozen section study as well as squash smear cytology when the latter two showed same diagnosis. The sensitivity and

specificity of squash smear cytology was computed by chi square test. They were 83.3% and 100% respectively with p value 0.004 which is less than 0.05 hence very significant. The positive predictive value was 100%. The diagnostic accuracy in case of gliomas without grading was 89.5% and for all other lesions it was 100%.

### **CONCLUSION:**

Squash smear cytology is a sensitive and specific modality for diagnosing CNS lesions. It is rapid, inexpensive and needs less expertise and suitable for developing countries like India. With increasing number of stereotactic biopsies being performed that yield tiny tissue samples it appears to be suitable method but has to be confirmed with histopathological examination to arrive at a final diagnosis.

### **KEY WORDS:**

CNS lesions, intraoperative diagnosis, squash smear , frozen section, accuracy.